

Amendment to the Claims:

1. (Cancelled)

2. (Currently Amended) [[The]] A medical diagnostic imaging system as set forth in claim 1 coupled to a scanner for acquiring image data from a patient and coupled to a hospital network, the hospital network including a hospital database which stores patient data including patient images and a plurality of hospital computers, the system comprising:

a scanner control which controls the scanner to perform a selected examination protocol, the scanner control including:

a display,

an applications database which is configurable by a

user, and

an interface which displays interactive user interface screens on the display and receives patient limiting parameters, wherein the user interface screens allow the user to configure the applications database and interactively control the scanner by at least activating icons and buttons displayed thereon, wherein the interface means-includes:

a protocol configuration means for configuring optimal- the selected examination protocols- protocol in response to receiving optimization-the patient limiting parameters entered by the user into at least data entry fields displayed on the user interface screens.

3. (Currently Amended) [[The]] A medical diagnostic imaging system as set forth in claim 2, further-including-for acquiring images of a patient, the imaging system being coupled to a hospital network which hospital network includes a hospital database which stores patient data including patient images, and a plurality of hospital computers, the imaging system comprising:

a scanner which scans the patient using a selected examination protocol to generate image data;

a scanner control which controls the scanner, the scanner control being coupled to the scanner and the hospital network, the scanner control including:

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a display,

an applications database which is configurable by a user, and

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an interface which causes the display to display interactive user interface screens on the display, which user interface screens allow the user to configure the applications database, enter a patient's limiting parameters, select from a list of selectable examination protocols, and interactively control the scanner by activating icons and buttons displayed thereon;

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an examination protocol database which stores a plurality of examination protocols;

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a protocol selection means for choosing a limited number of selectable examination protocols from among the plurality of examination protocols stored in the examination protocol database in response to receiving the patient's limiting parameters ~~one of~~ entered by the user into data entry fields displayed on the user interface screens, from the hospital database, or from a remote terminal, and displaying only the chosen examination protocols on the display from which the user selects ~~a correct the selected~~ examination protocol such that the user is limited to selecting only among chosen examination protocols chosen by the protocol selection means.

4. (Currently Amended) The system as set forth in claim [[1]] 2, further including a post processor which reconstructs the image data acquired by the scanner into patient images and wherein the interface means further includes:

5 ~~packages a post processor~~ in response to receiving acquisition and post-processing parameters entered by the user into at least data entry fields displayed on the user interface screens.

5. (Currently Amended) The system as set forth in claim [[4]] 3, wherein the ~~protocol selection means includes further including:~~

5 a ~~post-processing means for processor which automatically launching a correct commences~~ post-processing package which matches during data acquisition in accordance with types and formats of images commonly generated with the selected examination protocol, or patient's limiting parameters entered by the user into data entry fields to generate patient images.

6. (Currently Amended) The system as set forth in claim [[5]] 4, wherein the ~~post-processing means post-processor generates post-processed the patient images simultaneously as the images of the patient are acquired while the patient is being scanned.~~

7. (Currently Amended) The system as set forth in claim 6, wherein the ~~post-processed patient~~ images are automatically sent to a reviewing physician's hospital computer.

8. (Currently Amended) The system as set forth in claim 4, wherein the post-processing configuration means includes:

5 a visualization configuration means for configuring visualization parameters, including a slice or slab thickness, zoom, and windowing, in response to receiving ~~acquisition and post-processing parameters the selected examination protocol~~ entered by the user into the data entry fields and diagnosing radiologists preferences from the hospital database.

9. (Currently Amended) The system as set forth in claim [[8]] 3, wherein the post-processing means includes:

5 a visualization configuration means for ~~automatically launching searching the hospital database for~~ visualization parameters ~~which match patient's limiting parameters entered by the user into data entry fields~~ parameter preferences of

a diagnosing radiologist and adjusting level, zoom, slice and slab thickness, windowing, and other visualization parameters in accordance with the diagnosing radiologist's preferences from the hospital database.

10. (Cancelled)

11. (Currently Amended) The system as set forth in claim [[10]]_3, wherein the scanner is a CT scanner and the interface means includes:

a parameters optimization means for automatically selecting optimization parameters of an x-ray source of the CT scanner based on the selected examination protocol to correct ~~at least one of:~~

voltage supplied to the CT scanner x-ray source,
amperage supplied to the CT scanner x-ray source, and
[[a]]an x-ray dose supplied to the patient.

12. (Currently Amended) The system as set forth in claim [[10]]_5, wherein the interface means includes:

a pre-fetch means for searching the hospital database for previous ~~scans and examinations images~~ of the patient[[.]]~~wherein the previous scans and examinations are~~ and automatically [[sent]]sending the previous images to [[the]] a diagnosing physician's hospital computer without waiting for a transfer request from the physician.

13. (Currently Amended) The system as set forth in claim [[12]]_5, wherein ~~the parameters and selection means chooses the selectable examination protocols in accordance with examination protocols~~ [[of]] used for previous examinations ~~are used in the step of selecting the examination protocol stored in the~~ hospital database of the patient to generate the patient images.

14. (Currently Amended) The system as set forth in claim 12, wherein the previous ~~seans-images~~ have been generated ~~[[at]]~~ by a different modality and the system ~~utilizes further including:~~ an auto registration ~~technique to means for~~ registering and displaying the previous and current ~~seans-images~~ at the physician's computer.

15. (Currently Amended) The system as set forth in claim ~~[[10]]~~ 3, wherein the interface ~~means~~-includes:
a slab review means for merging image slices acquired by the scanner into slabs of selected thickness which is interactively supplied by the user, displaying
5 the slabs, and separating slabs selected by the operator back into their constituent individual slices for display to the user.

16. (Currently Amended) The system as set forth in claim ~~[[10]]~~ 3, wherein the interface ~~means~~-includes:
a log means for ~~automatically recording selected scanner's information including at least collecting the entered patient's information and limiting parameters,~~
5 ~~scanner's-scanner~~ running time, examination protocols used and other scan information for each scanned patient, and generating ~~[[into]]~~ a digital log book.

17. (Currently Amended) The system as set forth in claim 16, further including:

a remote statistics means for remotely accessing and mining the digital log book to provide statistical analysis for optimizing scanner use.

18. (Currently Amended) The system as set forth in claim ~~[[10]]~~ 3, further including:

a remote computer on a PDA;

a ~~mobile-protocol means for remotely specifying and loading~~
5 ~~examination protocols into the hospital database, wherein~~ at the beginning of a scan

procedure, the interface means—automatically uploads the selected examination protocols ~~into the scanner protocol from the computer or PDA.~~

19. (Currently Amended) The system as set forth in claim [[1]] 2, further including:

a measurement protocol configuration means ~~for configuring by which~~
a user configures measurement protocols, which measurement protocol configuration
5 means ~~includes: a measurement selection means for selecting—selects~~ a list of
measurements ~~to be performed for each measurement which can be measured using~~
the selected examination protocol, ~~[[;]]~~—and a reference image means ~~for selecting~~
which selects a reference image which provides a visual indication of where each
individual measurement is ~~placed—located~~, and causes the display to display the list
10 and the reference image.

20. (Previously Presented) The system as set forth in claim 19, further including:

a measurement protocol means for selecting a correct measurement
protocol in response to receiving patient's limiting parameters entered by the user into
5 data entry fields displayed on the user interface screens;
a measurement calculating means for performing actual measurements;
and
a measurement updating means for storing the actual measurements.

21. (Currently Amended) The system as set forth in claim [[1]] 2, wherein the interface means includes:

a workflow means for guiding the user through the imaging process
which workflow means presents the user interface screens to the user in a subsequent
5 sequential order and prompts the user to enter data including at least the patient's
[[data]] limiting parameters, requested procedure and requesting physician.

22. (Currently Amended) A method of optimizing a throughput of the diagnostic image processing system of claim [[1]]2, comprising the steps of:

storing a plurality of the examination protocols in an application database in a hospital network;

5 entering the patient limiting parameters into the application database prior to scanning the patient;

matching the patient limiting parameters with one or more optimal examination protocols stored in the application database;

10 displaying a list of the one or more optimal examination protocols for the scanning of the patient in response to the results of the matching;

displaying the list to the user to use in selecting the examination protocol to be used in the patient information.

23. (Cancelled)

24. (Cancelled)

25. (New) The system as set forth in claim 3, wherein the patient's limiting parameters include patient size, patient age, a radiologist identification, radiologist preferences, and a nature and region of the patient to be scanned.

26. (New) A medical diagnostic imaging system coupled to a hospital network, which hospital network interconnects a hospital archive database, computers, computer displays, and a diagnostic scanner which scans a patient using a selected examination protocol, the medical diagnostic imaging system including:

5 a display device; and

a computer programmed to:

select a limited number of examination protocols from a menu of available protocols in accordance with entered patient size, patient age, radiologist identification, radiologist preferences, and a nature and region of the patient to be
10 scanned, and generating an operator interactive display on the display device of the

limited number of examination protocols, such that a user selects the selected examination protocol to be used to scan the patient from the limited number of display examination protocols.

27. (New) The medical diagnostic imaging system as set forth in claim 26, wherein the computer is further programmed to:

5 automatically, without user instructions, commence post-processing during data acquisition in accordance with types and format of images most commonly generated for the selected examination protocol.

28. (New) The medical diagnostic imaging system as set forth in claim 26, wherein the scanner is a CT scanner and the computer is further programmed to:

5 optimize a tube voltage and tube current for an x-ray source of the CT scanner in accordance with an operated selected protocol.

29. (New) The medical diagnostic imaging system as set forth in claim 26, wherein the computer is further programmed to:

5 search the hospital archive database for images of the patient currently undergoing examination and routing the archive patient images directly to the display terminal of a diagnosing radiologist, automatically without waiting for a transfer request.

30. (New) The medical diagnostic imaging system as set forth in claim 26, wherein the computer is further programmed to:

5 search the hospital archive database to determine if a current scan is a follow-up scan, determine parameters and examination protocols used in prior scans, and set the scanner to conduct the follow-up examination using the same parameters and examination protocols.

31. (New) The medical diagnostic imaging system as set forth in claim 26, wherein the computer is further programmed to:

search the hospital archive database to determine preferences of a
diagnosing radiologist and adjust level, zoom, slice and slab thicknesses, windowing,
5 and other display characteristics in accordance with the retrieved preferences of the
diagnosing radiologist.

32. (New) The medical diagnostic imaging system as set forth in
claim 26, wherein the computer is further programmed to:
merge groups of slice images into a smaller number of slab images,
sequentially display the slab images, and display the individual slice images
5 corresponding to each slab image designated by a diagnosing radiologist.

33. (New) The medical diagnostic imaging system as set forth in
claim 26, wherein the computer is further programmed to:
generate a series of prompts to an operator to lead the operator
sequentially through an imaging procedure.

34. (New) The medical diagnostic imaging system as set forth in
claim 26, wherein the computer is further programmed to:
for each scanner, automatically generate a digital log book by
collecting entered patient information and scan information for each patient examined
5 by the corresponding scanner.

35. (New) The medical diagnostic imaging system as set forth in
claim 26, wherein the computer is further programmed to:
at the beginning of a scan procedure, automatically upload examination
protocol information previously submitted from a remote computer or PDA.

36. (New) The medical diagnostic imaging system as set forth in
claim 26, wherein the computer is further programmed to:
automatically commence post-processing during data acquisition in
accordance with types and format of images most commonly generated for a selected
5 examination protocol; and

search the hospital archive database for images of the patient currently undergoing examination and routing the archive patient images directly to a display terminal of a diagnosing radiologist, automatically without waiting for a transfer request; and

- 10 search the hospital archive database to determine if a current scan is a follow-up scan, determining parameters and examination protocols used in prior scans, and setting the scanner to conduct the follow-up examination using the same parameters and examination protocols; and

- 15 search the hospital archive database to determine preferences of a diagnosing radiologist and adjust level, zoom, slice and slab thicknesses, windowing, and or other display characteristics in accordance with the retrieved preferences of the diagnosing radiologist; and

generate a series of prompts to an operator to lead the operator sequentially through an imaging procedure;

- 20 for each scanner, automatically generate a digital log book by collecting entered patient information and scan information for each patient examined by the corresponding scanner; and

at the beginning of a scan procedure, automatically uploading examination protocol information previously submitted from a remote computer or

- 25 PDA.